Remarks

Claims 1, 2, 4-11, 13, 15-17 and 21 are pending. Claims 1, 11, and 17 have been amended. Claims 3, 12, 14, and 18-20 have been cancelled. New claim 21 has been added. Reconsideration of this application in light of the above amendments and the following remarks is requested.

Rejections under 35 U.S.C. § 112

Claims 1, 11, and 19 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential elements. Claims 1 and 11 have been amended to overcome the rejections. Claim 19 has been cancelled and so the rejection with respect to claim 19 is deemed moot.

Claim 14 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 14 has been cancelled, so this rejection is deemed moot.

Claim 17 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 17 has been amended to overcome the rejection.

Rejections under 35 U.S.C. § 102(b)

Claims 1, 2, 5, 6, 10, 11, 13, 16, and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2001/0047222 to Wiesler et al. ("Wiesler"). As the PTO provides in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim...." (emphasis added). Therefore, the cited reference must disclose all of the elements of the claims to sustain the rejection. Accordingly, Applicant respectfully traverses this rejection on the following grounds.

Applicant submits that the amendments to claims 1 and 11 clearly overcome the Wiesler reference under 35 U.S.C. § 102(b). For example, elements of dependent claims 3 and 18 have been incorporated into claims 1 and 11, respectively. As claims 3 and 18 were rejected under 35 U.S.C. § 103, Applicant will address claims 1 and 11 in greater detail in the following section under 35 U.S.C. § 103. Claims 2, 5, 6, 10, 13, 16, and 17 depend from one of claims 1 and 11

and are allowable for at least the same reason as the claim from which they depend, as discussed below.

Rejections under 35 U.S.C. § 103(a)

Claims 3, 4, 15, and 18 stand rejected under 35 U.S.C. § 103(a) as being obvious over Wiesler in view of U.S. Patent No. 6,760,640 to Suttile et al. ("Suttile"). Claims 7-9 stand rejected under Wiesler in view of U.S. Patent No. 6,366,824 to Nair et al. ("Nair"). Although claims 3 and 18 have been cancelled, their subject matter has been incorporated into independent claims 1 and 11, respectively. Accordingly, the following discussion is directed to claims 1 and 11.

A.   Combination of references fails to teach or suggest all claim limitations

As provided in MPEP § 2143, "[t]o establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." Furthermore, under MPEP § 2142, "[i]f the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness." It is submitted that the Office action does not factually support a prima facie case of obviousness based on Wiesler and Suttile for the following reasons.

Claims 1, 3, 4, and 7-9

Claim 1, as amended, recites in part establishing a virtual fab with a plurality of entities, each entity associated with an internal process to a semiconductor fab or an external process to the semiconductor fab, wherein at least one of the entities includes a service system interface for communicating between a computer system associated with a customer external to the virtual fab and a computer system associated with the virtual fab; defining a state diagram for tracking the plurality of lithographic masks through the plurality of entities of the virtual fab; placing each of the plurality of lithographic masks at a pre-determined state of the state diagram; determining a future location for each of the masks in the virtual fab via the state diagram; and enabling the

customer to identify the pre-determined state of a particular mask and to alter the future state of that particular mask via the service system interface.

Applicant submits that the combination of Wiesler and Suttile fails to teach or suggest all the claim limitations. For example, the combination fails to teach or suggest enabling the customer to identify the pre-determined state of a particular mask and to alter the future state of that particular mask via the service system interface. More specifically, Suttile (as relied upon to reject original claim 3) describes that "[o]nce the customer generates the SEMI Specification and the pattern data, the customer electronically transfers this information, over a network via network protocol, from the customer's facilities (hereinafter, "the Customer System") to a manufacturer's interface computer server ...." (col. 7, lines 25-29). "Additionally, a manufacturing execution system ("MES") can be installed on a client computer which may also be interfaced by the Processing Server. MES systems are well known in the art and provide a system user with the capability of tracking the manufacturing process, generating billing information, and down loading the results of the various manufacturing tasks discussed herein." (col. 11, line 66 – col. 12, line 5).

Accordingly, Suttile discloses the customer initially sending data (col. 7, lines 25-46) and then possibly monitoring the process (col. 11, line 66 – col. 12, line 5). However, the cited text of Suttile fails to teach or disclose that a customer can access the system to alter the manufacturing process. Wiesler fails to cure this deficiency of Suttile, as do the other cited references. Accordingly, the cited combination fails to teach or suggest each element of claim 1 as required by MPEP § 2143, and claim 1 is allowable over the cited references. Claims 2, 4-6, and 10 depend from and further limit claim 1 and are allowable for at least the same reasons as claim 1.

Claims 7-9 also depend from and further limit claim 1. Furthermore, Nair fails to cure the deficiencies of Wiesler and Suttile, and claims 7-9 are allowable for at least the same reason as claim 1.

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Claims 11 and 15

Claim 11, as amended, recites in part a second group of instructions for establishing an enterprise mask management system, wherein the enterprise mask management system includes a service system interface for communicating with a customer external to the virtual fab; a third group of instructions for establishing and maintaining a plurality of state diagrams, the state diagrams having a plurality of states corresponding to the entities of the virtual fab, and the maintaining including updating a progression of a mask through the states being controlled by the enterprise mask management system; and a fourth group of instructions for enabling the customer to identify the state of a particular mask and to alter the progression of the mask through the states via the service system interface.

Applicant submits that the combination of Wiesler and Suttile fails to teach or suggest all the claim limitations. For example, the combination fails to teach or suggest a fourth group of instructions for enabling the customer to identify the state of a particular mask and to alter the progression of the mask through the states via the service system interface. More specifically, Suttile (as relied upon to reject original claim 18) describes that "[o]nce the customer generates the SEMI Specification and the pattern data, the customer electronically transfers this information, over a network via network protocol, from the customer's facilities (hereinafter, "the Customer System") to a manufacturer's interface computer server ...." (col. 7, lines 25-29). "Additionally, a manufacturing execution system ("MES") can be installed on a client computer which may also be interfaced by the Processing Server. MES systems are well known in the art and provide a system user with the capability of tracking the manufacturing process, generating billing information, and down loading the results of the various manufacturing tasks discussed herein." (col. 11, line 66 – col. 12, line 5).

Accordingly, Suttile discloses the customer initially sending data (col. 7, lines 25-46) and then possibly monitoring the process (col. 11, line 66 – col. 12, line 5). However, the cited text of Suttile fails to teach or disclose that a customer can access the system to alter the manufacturing process. Wiesler fails to cure this deficiency of Suttile, as do the other cited references. Accordingly, the cited combination fails to teach or suggest each element of claim 11 as required by MPEP § 2143, and claim 11 is allowable over the cited references. Claim 15

depends from and further limit claim 11 and are allowable for at least the same reasons as claim 11.

B.   There is no motivation to combine the references

Furthermore, even if the combination of Wiesler and Suttile taught or suggested each element of each claim (which it clearly does not, as described above), the case law is clear that there must be evidence that a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. It is also clear that a rejection cannot be predicated on the mere identification of individual components of claimed limitations. Rather, particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *Ecolochem Inc. v. Southern California Edison*, 56 USPQ2d 1065, 1076 (Fed. Cir. 2000) (emphasis added). The Office action states "[i]t would have been obvious to one skilled in the art at the time the invention was made to utilize a customer interface to the system taught by Wiesler since this would allow a customer to be interfaced via a network to photomask manufacturer's computer and therefore eliminate the need for manual intervention, which would help avoid costly delays." (Office action, page 6). Applicant submits that such a general statement is not sufficient to meet the requirement of evidence or particular findings.

Additionally, although Applicant strongly disagrees that the combination of Wiesler and Suttile teaches or suggests each claim, even if it did, "[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP § 2143.01. "A statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references." MPEP § 2143.01 (emphasis original). Here, not only has the Office

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action stated no objective reason to combine the references (as described in the preceding paragraph), but the references fail to even show all aspects of the claimed invention as required.

Therefore, the combination of references is improper and claims 1 and 11 are allowable over the cited art.

New claim 21

New claim 21 recites an enterprise mask process management system for managing a plurality of lithographic masks within a virtual fabrication environment, the system comprising: an interface coupling a customer external to the virtual fabrication environment with the enterprise mask process management system; a fabrication entity internal to the virtual fabrication environment and including a plurality of fabrication states, wherein each of the fabrication states defines one or more operations performed by the fabrication entity with respect to a mask; a central operation entity internal to the virtual fabrication environment and coupled to the customer via the interface, wherein the central operation entity includes a plurality of management states defining operations for managing a mask outside of the fabrication entity and for communicating with the fabrication facility using at least one of the fabrication states; and a processor coupled to a memory and accessible to the enterprise mask process management system for executing a plurality of instructions stored on the memory, the instructions including: instructions for maintaining a state diagram associating each of the masks with one of the fabrication or management states, wherein the state diagram is updated as a mask is transferred from one state to another; instructions for determining a future state for each of the masks within the virtual fabrication environment using the state diagram; and instructions for enabling the customer to monitor a mask and its associated state and to alter at least one of the associated state and the future state for the mask via the central operation entity.

Applicant submits that the cited references, whether taken singly or in combination, fail to teach or suggest each element of claim 21 as required by MPEP §§ 2131 and 2143. Accordingly, claim 21 is allowable over the cited references.

Conclusion

Applicant respectfully submits that all pending claims are in condition for allowance. Should the Examiner have any further comments, the Examiner is invited to contact the Applicant at the below listed number.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

on ___2-1-05___

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